CONCLUSIONS Among the ADHF patients, LUS B-lines correlated significantly to the level of serum BNP, especially of those without left atrium dilatation; while in the group with left atrium dilatation, they have no relationship. We also observed that B-lines on the LUS is more sensitive in monitoring the recovery of the ADHF patients.

GW26-e2143

Analysis of the Relationship Between Reverse Ductus Arteriosus Flow and Pulmonary Development of Fetal with Right Ventricular Obstructive Lesions

Ye Zhang, Yihua He
Department of Ultrasound, Beijing Anzhen Hospital, Capital Medical University

OBJECTIVES To investigate the relationship between reversed ductus arteriosus flow and pulmonary development of fetal with right ventricular obstructive lesions.

METHODS Among 4,006 cases, 75 cases were prenatal diagnosed of pulmonary stenosis or pulmonary atresia by fetal echocardiography, and divided into positive perfusion group (case group 1) and reverse perfusion group (case group 2). We also selected 100 normal fetus with matched gestational as control group. The parameters, included pulmonary / aortic annulus diameter (PA/AO), McGoon index and ductus arteriosus / descending aorta diameter (DA/DAO), were compared between two groups.

RESULTS PA / AO in patients (case group 1 and group 2) were lower than the control group, the difference was statistically significant. McGoon ratio in case group1 close to normal control group, the difference was not statistically significant; McGoon ratio in case group 2 was significantly lower than the control group, the difference was statistically significant. DA / DAO index in case group (group 1 and group 2) and normal control group showed no significant difference.

CONCLUSIONS The finding of reversed flow by fetal echocardiograph provides a key to subsequent accurate diagnosis and denotes severe right heart malformations and pulmonary vascular dysplasia with a very poor prognosis.

GW26-e2475

Prediction of Coronary Heart Disease Using the Standard Deviation of Carotid Young's Modulus and Presence or Absence of Plaque

Yanling Zhang,[1] Lili Niu,[2] Junlin Zhong,[1] Hairong Zheng,[2] Rongqin Zheng[1]
[1]The Third Affiliated Hospital, SUN Yat-sen University; [2]Paul C. Lauterbur Research Center for Biomedical Imaging, Institute of Biomedical and Health Engineering, Shenzhen Institutes of Advanced Technology

OBJECTIVES Large artery stiffness and the presence or absence of plaques is associated with coronary heart disease (CHD). Because arterial walls are biologically heterogeneous, the standard deviation of Young's modulus (YM-std) of the large arteries may better predict coronary atherosclerosis. However, the role of YM-std in the occurrence of coronary events has not been addressed so far. Therefore, this study investigated whether the carotid YM-std and the presence or absence of plaque improved CHD risk prediction.

METHODS Forty-six patients with CHD (age 64±10 years) and 105 patients at high risk of atherosclerosis (age 61±7 years) were recruited. Carotid YM was measured by vessel texture matching method, and YM-std was calculated. Carotid intima-media thickness was measured by B-mode ultrasound.

RESULTS Compared with non-CHD subjects, the CHD patients showed an increase in YM(828 ± 276 versus 941 ± 200 kPa, p = 0.006) and YM-std (146.0 ± 92.7 versus 203.1 ±88.7 kPa, p = 0.001). In logistic regression analysis, YM-std (OR = 1.01; 95% CI =1.002-1.017), carotid plaque (OR = 13.691; 95% CI = 2.257-83.025) and YM-std plus plaque (OR = 0.991; 95% CI = 0.982-1.000) were independent predictors of CHD. The traditional risk factors (TRF) plus YM-std plus plaque model provided the most improvement in AUC, which increased from 0.679 (TRF only) to 0.772 (95% CI for the difference in adjusted AUC: 0.015 to 0.170).

CONCLUSIONS Carotid YM-std is a powerful independent predictor of CHD. Adding plaque and YM-std to TRF improves CHD risk prediction.

GW26-e2505

The contrast of radiation dose with three scan modes in 320-slice dynamic volume computed tomography angiography compared with selective coronary angiography

Xuelian Liu,[1] Limin Liang,[3] Xianhui Lian,[1] Baoshun Hao[2]
[1]Department of Radiology, The Third Affiliated Hospital of Sun Yat-sen University; [2]Department of Cardiology, The Third Affiliated Hospital of Sun Yat-sen University; [3]Nursing Department, The Third Affiliated Hospital of Sun Yat-sen University

OBJECTIVES To contrast the radiation dose with three scan modes in 320-slice dynamic volume CT (DVCT) coronary angiography in comparison of selective coronary angiography.

METHODS The study included 192 patients(118males, 65.9±11.2 years) with suspected coronary artery disease who were referred for 320-slice DVCT coronary angiography(Aquilion One, Toshiba Medical) followed by selective catheter coronary angiography. Three scan modes were performed in 320 CT scanner. 123 patients with Prospective scanning (group A1), 51 patients with CT coronary artery imaging/ cardiac function analysis scanning (group A2), 18 patients with calcification integral scanning (group A3). The selective coronary angiographic studies were performed via radial or femoral arterial puncture (group B). The radiation dose of four groups were calculated.

RESULTS The radiation dose of group A1 has statistically significant with that of group A2 (6.34±0.54 *vs* 12.67±1.58, mSv, $P<0.05$) and that of group A3 (6.34±0.54 *vs* 15.12±1.46, mSv, $P<0.05$). The radiation dose of group A1 has no statistically significant with that of group B (6.34±0.54 *vs* 6.67±2.54, mSv, $P>0.05$).

CONCLUSIONS The prospective scan mode in 320-slice DVCT angiography can obviously decrease the radiation dose of patients and should be adopted as much as possible.

GW26-e2957

Age-Related Variation in Flow Blood Fields of The Aortic Arch by Vector Flow Mapping

Yuyan Cai, Xin Wei, Xiaoling Zhang, Liping Chen, Hong Tang
West China Hospital of Sichuan University

OBJECTIVES To investigate age-related changes in blood flow fields through the aortic arch using velocity distribution, vortex formation, energy loss at different cardiac cycles.

METHODS One hundred and seven healthy subjects (49males) were divided into four groups according to age : <18 years (group A, n=22), 18-39 years (group B, n=31), 40-59 years (group C, n=34) and >60 years (group D, n=20). VFM analysis were performed on prosound F75 Hitachi-Aloka Medical (Tokyo, Japan) and included the two-dimensional echocardiography imaging focused on the ascending aorta, 4-5cm below the opening of the brachiocephalic trunk, as well as the descending aorta, 4-5cm below the left subclavian artery. Both of them were divided into three different sections equally: the proximal section, the middle and the distal section.

RESULTS The following developmental changes were observed: 1.Except no significant difference between group C and D, a lower peak velocity (Vp) as age increasing through the entire aortic arch was significantly recognized in other groups. There was no obvious relationship between age and Vp distribution. 2. The vortex formation and distribution have no significant relationship with age. 3. Energy loss of the blood flow in the entire aortic arch had reflected quite distinct variations in some extent, which of group A was definitely higher compared with the other three groups throughout the entire cardiac cycle, meanwhile, which of group B was higher than group C and D in systole and early diastole simply.

CONCLUSIONS The Vp in different sections and the EL in aortic arch had certain correlation with age. The reference values for Vp and EL can be used in future studies examining patients with aortic arch diseases.

GW26-e3524

Value of the left atrial function index for assessing left atrial function in patients with atrial fibrillation

Tianliang Li,[1] Bao Li,[2] Chenliang Duan,[1] Xinling Hu,[1] Xiaoli Zhang[1]
[1]Department of Medical Ultrasound, Shanxi Cardiovascular Hospital, Taiyuan 030024, China; [2]Department of Cardiovascular Medicine, Shanxi Cardiovascular Hospital, Taiyuan 030024, China

OBJECTIVES To evaluate the left atrial function with the left atrial function index in patients with atrial fibrillation using echocardiography.